TROUBLESHOOTING

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	**Compression too low**	
	1. Worn cylinder.	Replace.
	2. Worn piston ring.	Replace.
	3. Worn valve guide or improper valve seating.	Repair or replace.
	4. Loose spark plug.	Tighten.
	5. Broken, cracked, or damaged piston.	Replace.
	6. Slow cranking starter motor. (DR-Z400E)	See electrical section.
	7. Mistimed valves.	Adjust.
	8. Tappet clearance out of adjustment.	Adjust.
	Spark plug not sparking	
	1. Damaged spark plug.	Replace.
	2. Damaged spark plug cap.	Replace.
	3. Fouled spark plug.	Clean or replace.
	4. Wet spark plug.	Clean and dry or replace.
	5. Defective ignition coil.	Replace.
	6. Open or short in high-tension cord.	Replace.
	7. Defective generator.	Replace.
	8. Defective CDI unit.	Replace.
	No fuel reaching the carburetor	
	1. Clogged fuel tank vent hose.	Clean or replace.
	2. Clogged or defective fuel valve.	Clean or replace.
	3. Defective carburetor needle valve.	Replace.
	4. Clogged fuel hose.	Clean or replace.
	5. Clogged fuel filter.	Clean or replace.
Engine stalls easily.	1. Fouled spark plug.	Clean or replace.
	2. Defective generator.	Replace.
	3. Defective CDI unit.	Replace.
	4. Clogged or defective fuel valve.	Clean or replace.
	5. Clogged carburetor jet.	Clean.
	6. Tappet clearance out of adjustment.	Adjust.

Complaint	Symptom and possible causes	Remedy
Engine is noisy.	**Excessive valve chatter**	
	1. Excessive tappet clearance.	Adjust.
	2. Weak or broken valve spring.	Replace.
	3. Worn camshaft.	Replace.
	4. Worn or burnt camshaft journal.	Replace.
	Noise seems to come from the piston	
	1. Worn piston.	Replace.
	2. Worn cylinder.	Replace.
	3. Carbon buildup in combustion chamber.	Clean.
	4. Worn piston pin or piston pin bore.	Replace.
	5. Worn piston ring or ring groove.	Replace.
	Noise seems to come from the cam chain	
	1. Stretched cam chain.	Replace cam chain and sprockets.
	2. Worn cam chain sprocket.	Replace cam chain and sprockets.
	3. Improperly working cam chain tensioner.	Repair or replace.
	Noise seems to come from the clutch	
	1. Worn countershaft spline.	Replace countershaft.
	2. Worn clutch hub spline.	Replace clutch hub.
	3. Worn clutch plate teeth.	Replace clutch plate.
	4. Distorted clutch plate.	Replace.
	5. Weak clutch damper.	Replace primary driven gear.
	6. Weak clutch spring.	Replace.
	Noise seems to come from the crankshaft	
	1. Rattling bearing.	Replace.
	2. Worn or burnt crank pin bearing.	Replace.
	3. Worn or burnt journal bearing.	Replace.
	4. Excessive thrust clearance.	Replace thrust bearing.
	Noise seems to come from the transmission	
	1. Worn or rubbing gear.	Replace.
	2. Worn countershaft spline.	Replace countershaft.
	3. Worn driveshaft spline.	Replace driveshaft.
	4. Worn or rubbing primary gear.	Replace.
	5. Worn bearing.	Replace.
Clutch slips.	1. Clutch cable out of adjustment.	Adjust.
	2. Weak or broken clutch spring.	Replace.
	3. Worn or distorted clutch pressure plate.	Replace.
	4. Distorted clutch plate.	Replace.
Clutch drags.	1. Clutch out of adjustment.	Adjust.
	2. Some clutch springs are weak, while others are not.	Replace.
	3. Worn or distorted clutch pressure plate.	Replace.
	4. Distorted clutch plate.	Replace.
Transmission will not shift.	1. Broken gearshift cam.	Replace.
	2. Distorted gearshift fork.	Replace.
	3. Worn gearshift pawl.	Replace.
Transmission will not shift back.	1. Broken gearshift shaft return spring.	Replace.
	2. Rubbing or stuck gearshift shaft.	Repair or replace.
	3. Worn or distorted gearshift fork.	Replace.

Complaint	Symptom and possible causes	Remedy
Transmission jumps out of gear.	1. Worn gear. 2. Worn or distorted gearshift fork. 3. Weakened gearshift stopper spring. 4. Worn gearshift pawl.	Replace. Replace. Replace. Replace.
Engine idles poorly.	1. Tappet clearance out of adjustment. 2. Improper valve seating. 3. Worn valve guide. 4. Worn camshaft. 5. Excessive spark plug gap. 6. Defective ignition coil. 7. Defective generator. 8. Defective CDI unit. 9. Incorrect float chamber fuel level. 10. Clogged carburetor jet.	Adjust. Repair or replace. Replace. Replace. Adjust or replace. Replace. Replace. Replace. Adjust float height. Clean.
Engine runs poorly in high-speed range.	1. Weak valve spring. 2. Worn camshaft. 3. Insufficient spark plug gap. 4. Mistimed valves. 5. Ignition not advanced sufficiently due to poorly working timing advance circuit. 6. Defective ignition coil. 7. Defective generator. 8. Defective CDI unit. 9. Low float chamber fuel level. 10. Dirty air cleaner element. 11. Clogged fuel hose, resulting in inadequate fuel supply to carburetor.	Replace. Replace. Regap or replace. Adjust. Replace CDI unit. Replace. Replace. Replace. Adjust float height. Clean or replace. Clean and prime.
Exhaust smoke is dirty or thick.	1. Excessive amount of engine oil. 2. Worn cylinder. 3. Worn piston ring. 4. Worn valve guide. 5. Scored or scuffed cylinder wall. 6. Worn valve stem. 7. Defective valve stem oil seal. 8. Worn oil ring side rail.	Check level and drain. Rebore or replace. Replace. Replace. Replace. Replace valve. Replace. Replace oil ring.
Engine lacks power.	1. Insufficient tappet clearance. 2. Weak valve spring. 3. Mistimed valves. 4. Worn cylinder. 5. Worn piston ring. 6. Improper valve seating. 7. Fouled spark plug. 8. Incorrect spark plug. 9. Clogged carburetor jet. 10. Incorrect float chamber fuel level. 11. Dirty air cleaner element. 12. Air leakage from intake pipe. 13. Excessive amount of engine oil.	Adjust. Replace. Adjust. Replace. Replace. Repair or replace. Clean or replace. Replace. Clean. Adjust float height. Clean or replace. Tighten or replace. Check level and drain.

Complaint	Symptom and possible causes	Remedy
Engine overheats.	1. Carbon buildup on piston crown. 2. Insufficient amount of engine oil. 3. Defective oil pump. 4. Clogged oil circuit. 5. Float chamber fuel level too low. 6. Air leakage from intake pipe. 7. Incorrect engine oil.	Clean. Check level and add. Replace. Clean. Adjust float height. Tighten or replace. Change.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Starting difficulty.	1. Clogged starter jet. 2. Clogged starter jet passage. 3. Air leaking from joint between starter body and carburetor. 4. Air leaking from carburetor joint or vacuum hose joint. 5. Improperly working starter (enricher) plunger.	Clean. Clean. Tighten, adjust, or replace gasket. Tighten or replace defective part. Adjust.
Idling or low-speed trouble.	1. Clogged or loose pilot jet. 2. Clogged or loose pilot air jet. 3. Air leaking from carburetor joint, vacuum pipe joint, or starter. 4. Clogged pilot outlet port. 5. Clogged bypass port. 6. Starter (enricher) plunger not fully closed.	Clean or tighten. Clean or tighten. Tighten or replace defective part. Clean. Clean. Adjust.
Medium or high-speed trouble.	1. Clogged main jet. 2. Clogged main air jet. 3. Clogged needle jet. 4. Improperly working throttle valve. 5. Clogged fuel filter.	Clean. Clean. Clean. Adjust. Clean or replace.
Overflow and fuel level fluctuations.	1. Worn or damaged needle valve. 2. Broken needle valve spring. 3. Improperly working float. 4. Foreign matter on the needle valve. 5. Incorrect float chamber fuel level.	Replace. Replace. Adjust or replace. Clean or replace with needle valve seat. Adjust float height.

CHASSIS

Complaint	Symptom and possible causes	Remedy
Steering is heavy.	1. Overtightened steering stem nut. 2. Broken bearing in steering stem. 3. Distorted steering stem. 4. Low tire pressure.	Adjust. Replace. Replace. Regulate.
Handlebar wobbles.	1. Loss of balance between right and left front forks. 2. Distorted front fork. 3. Distorted front axle. 4. Twisted tire.	Adjust or replace. Repair or replace. Replace. Replace.
Front wheel wobbles.	1. Distorted wheel rim. 2. Worn front wheel bearing. 3. Defective or incorrect tire. 4. Loose front axle nut. 5. Incorrect fork oil level.	Replace. Replace. Replace. Tighten. Adjust.
Front suspension too soft.	1. Weak spring. 2. Insufficient fork oil. 3. Improper suspension setting.	Replace. Check level and add. Adjust.
Front suspension too stiff.	1. Excessively viscous fork oil. 2. Excessive fork oil. 3. Improper suspension setting.	Replace. Check level and drain. Adjust.
Front suspension too noisy.	1. Insufficient fork oil. 2. Loose front suspension fastener.	Check level and add. Tighten.
Rear wheel wobbles.	1. Distorted wheel rim. 2. Worn rear wheel bearing. 3. Defective or incorrect tire. 4. Worn swingarm bearing. 5. Loose rear axle nut. 6. Loose rear suspension fastener.	Replace. Replace. Replace. Replace. Tighten. Tighten.
Rear suspension too soft.	1. Weak rear shock absorber spring. 2. Rear shock absorber leaks oil. 3. Improper suspension setting.	Replace. Replace. Adjust.
Rear suspension too stiff.	1. Improper suspension setting. 2. Bent rear shock absorber shaft. 3. Worn swingarm bearing and rear suspension related bearing.	Adjust. Replace. Replace.
Rear suspension too noisy.	1. Loose rear suspension fastener. 2. Worn swingarm bearing and rear suspension related bearing.	Tighten. Replace.

BRAKES

Complaint	Symptom and possible causes	Remedy
Brake power insufficient.	1. Leakage of brake fluid. 2. Worn brake pad. 3. Oil on brake pad surface. 4. Worn brake disc. 5. Air in hydraulic system.	Repair or replace. Replace. Clean brake disc and brake pads. Replace. Bleed.
Brake squeaks.	1. Carbon adhesion on brake pad surface. 2. Tilted brake pad. 3. Damaged wheel bearing. 4. Worn brake pad. 5. Foreign material in brake fluid. 6. Clogged return port of master cylinder. 7. Loose front or rear axle nut.	Clean surface with sandpaper. Readjust brake pad position or replace. Replace. Replace. Change brake fluid. Disassemble and clean master cylinder. Tighten.
Brake lever or pedal stroke excessive.	1. Air in hydraulic system. 2. Insufficient brake fluid. 3. Incorrect brake fluid.	Bleed. Check level and add. Bleed any air. Change.
Brake fluid leaks.	1. Loose connection joint. 2. Cracked hose. 3. Worn piston seal. 4. Worn secondary cup.	Tighten. Replace. Replace. Replace.
Brake drags.	1. Rusty part. 2. Insufficient brake lever or brake pedal pivot lubrication.	Clean and lubricate. Lubricate.

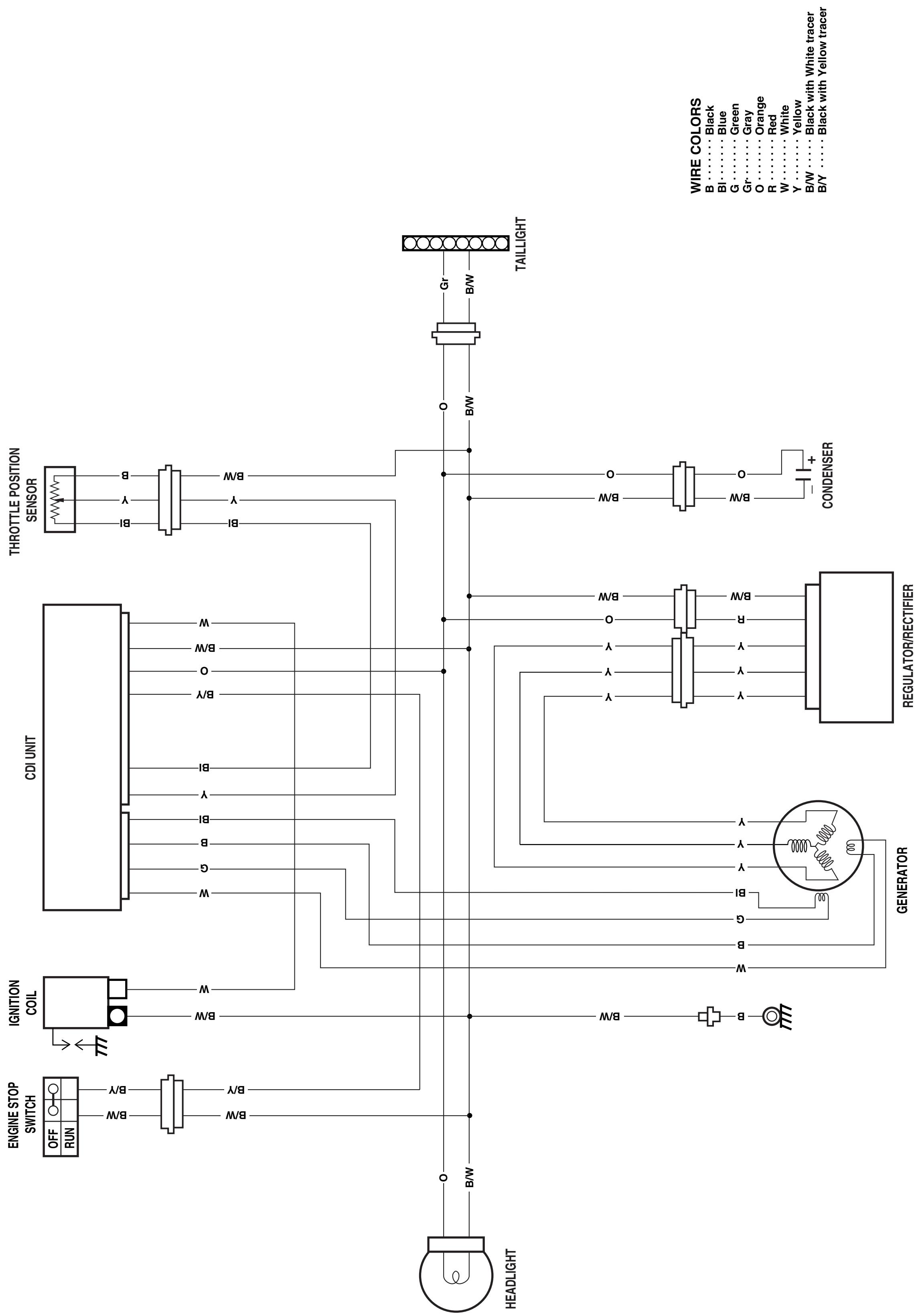
ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plug. 3. Defective generator. 4. Defective CDI unit.	Replace. Replace. Replace. Replace.
Spark plug is wet or quickly becomes fouled with carbon.	1. Excessively rich air/fuel mixture. 2. Excessively high idling speed. 3. Incorrect gasoline. 4. Dirty air cleaner element. 5. Incorrect spark plug (cold type).	Adjust carburetor. Adjust carburetor. Change. Clean or replace. Change to hot type spark plug.
Spark plug quickly becomes fouled with oil or carbon.	1. Worn piston ring. 2. Worn piston. 3. Worn cylinder. 4. Excessive valve-stem-to-valve-guide clearance. 5. Worn valve stem oil seal.	Replace. Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	1. Incorrect spark plug (hot type). 2. Overheated engine. 3. Loose spark plug. 4. Excessively lean air/fuel mixture.	Change to cold type spark plug. Tune-up. Tighten. Adjust carburetor.
Generator does not charge.	1. Open or short in lead wires, or loose lead connections. 2. Shorted, grounded, or open generator coil. 3. Shorted or punctured regulator/rectifier.	Repair, replace, or connect properly. Replace. Replace.
Generator charges but charging rate is below the specifications.	1. Lead wires tend to get shorted or open-circuited or loosely connected at terminal. 2. Grounded or open-circuited stator coils or generator. 3. Defective regulator/rectifier. 4. Defective battery cell plates.	Repair or tighten. Replace. Replace. Replace battery.
Generator overcharges.	1. Internal short-circuit in the battery. 2. Damaged or defective regulator/rectifier. 3. Poorly grounded regulator/rectifier.	Replace battery. Replace. Repair, replace, or connect properly.
Unstable charging.	1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting. 2. Internally shorted generator. 3. Defective regulator/rectifier.	Repair or replace. Replace. Replace.
Starter button does not work. (DR-Z400E)	1. Run down battery. 2. Defective switch contact. 3. Brushes do not seat properly on the commutator in the starter motor. 4. Defective starter relay. 5. Wiring connections loose or disconnected.	Recharge or replace. Replace. Repair or replace. Replace. Tighten or repair.

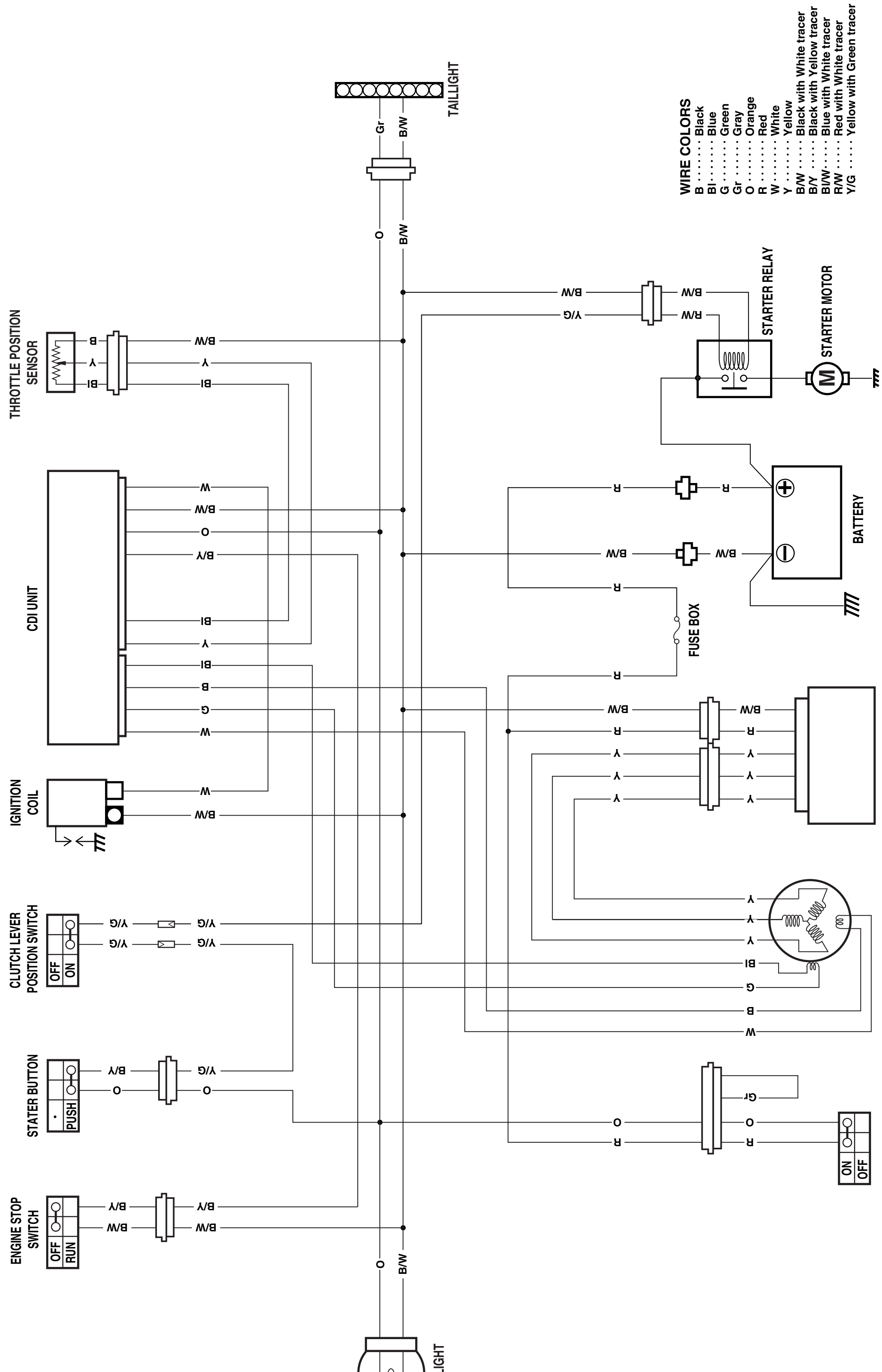
BATTERY (DR-Z400E)

Complaint	Symptom and possible causes	Remedy
Sulfation or spots on surfaces of cell plates.	1. Cracked battery case. 2. Battery has been left in a run-down condition for a long time.	Replace. Replace.
Battery runs down quickly.	1. Incorrect charging method. 2. Battery cell plates have lost much of their active material as a result of overcharging. 3. Internally shorted battery. 4. Excessively low battery voltage. 5. Battery is too old. 6. Dirty container top and sides.	Check generator, regulator/rectifier circuit connections, and make necessary adjustment to obtain specified charging operation. Replace battery and correct charging system. Replace. Charge. Replace. Clean.
Battery sulfation.	1. Incorrect charging rate. (When not in use, the battery should be checked at least once a month and properly charged if necessary, to avoid sulfation.) 2. The battery was left unused in a cold climate for too long.	Replace. Replace the battery if badly sulfated.

WIRING DIAGRAM
DR-Z400

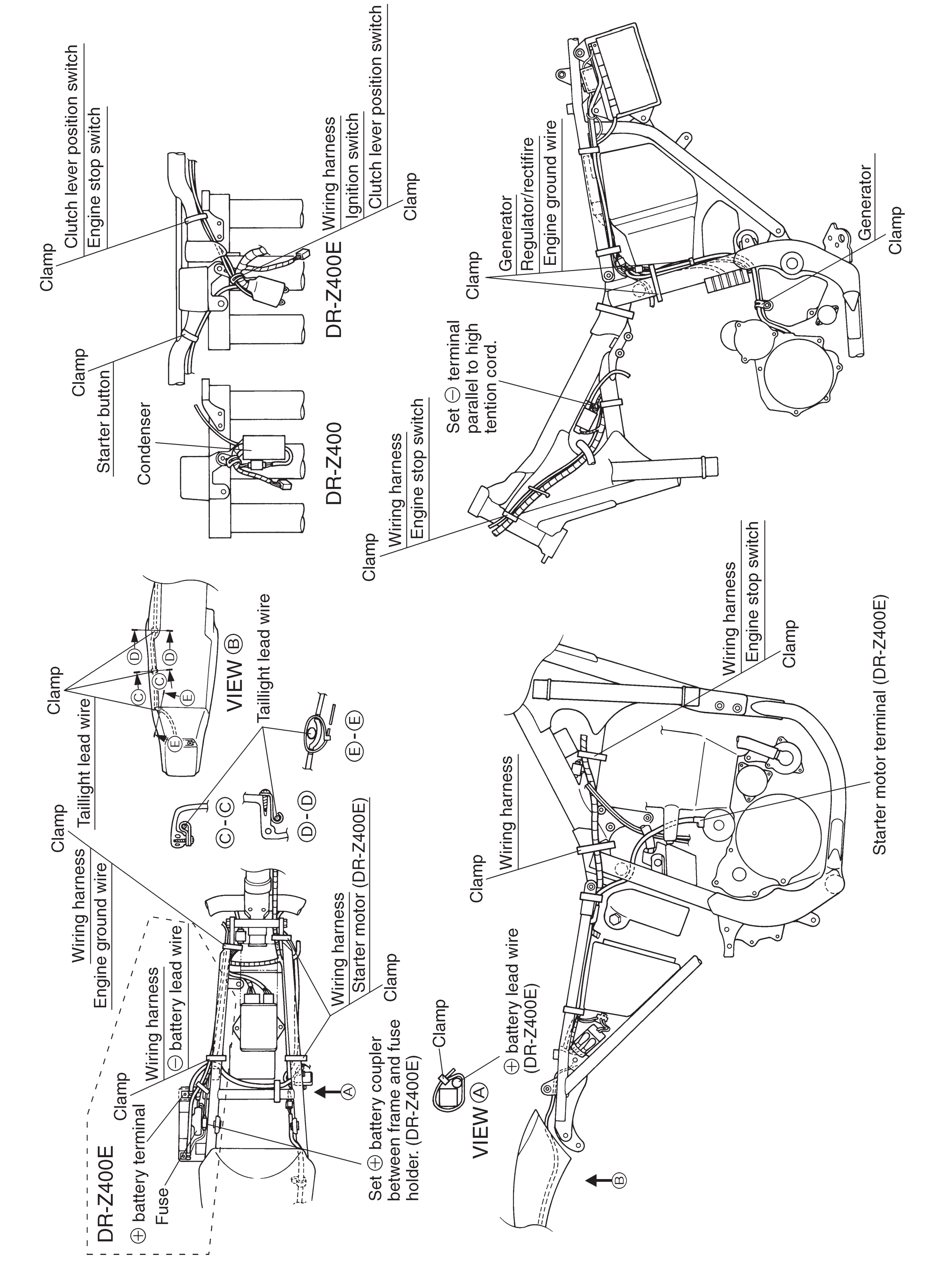


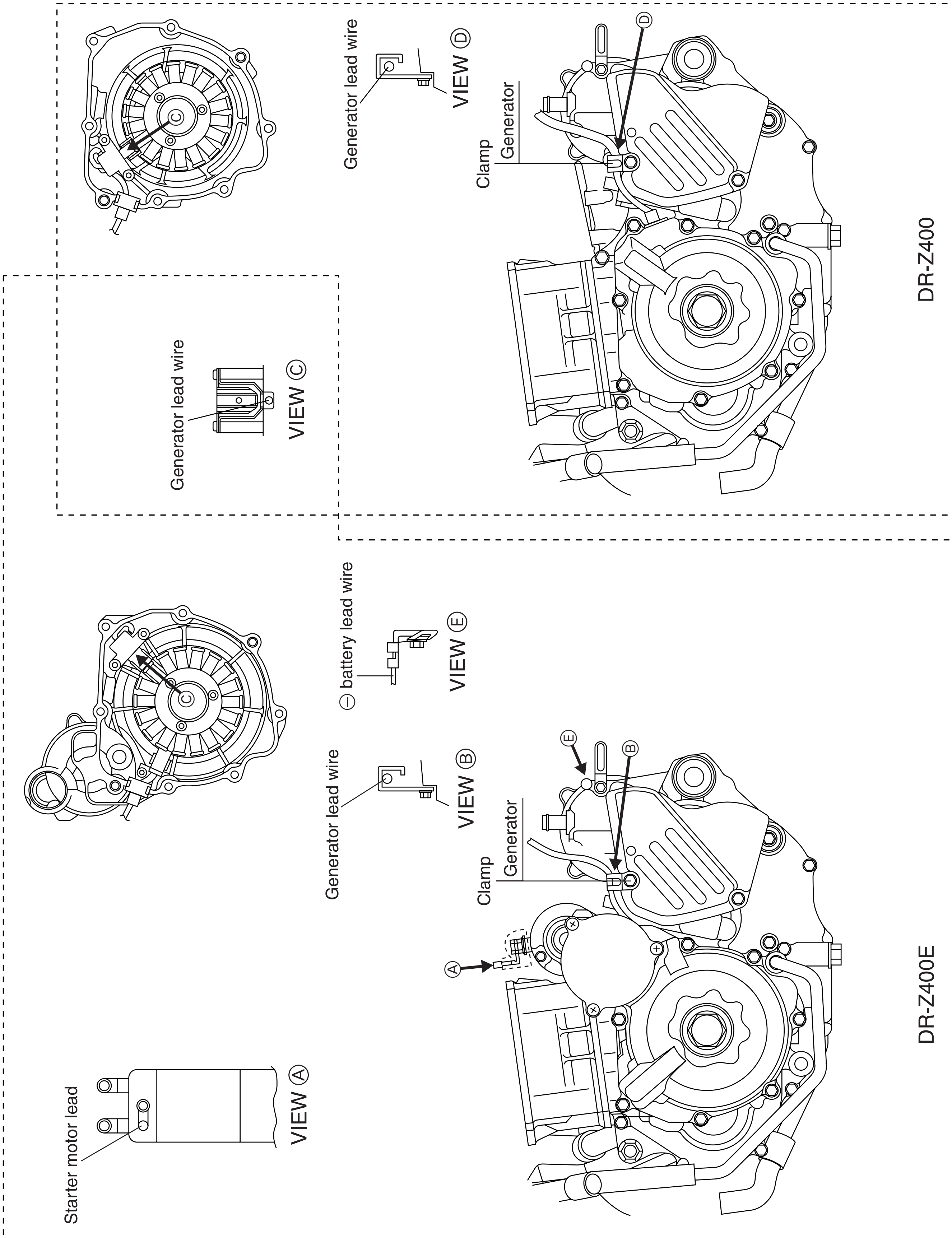
DR-Z400E


WIRE COLORS
B · · · · · · · Black
Bl · · · · · · · Blue
G · · · · · · · Green
Gr · · · · · · · Gray
O · · · · · · · Orange
R · · · · · · · Red
W · · · · · · · White
Y · · · · · · · Yellow
B/W · · · · · Black with White tracer
B/Y · · · · · Black with Yellow tracer
Bl/W · · · · Blue with White tracer
R/W · · · · · Red with White tracer
Y/G · · · · · Yellow with Green tracer
TAILLIGHT
THROTTLE POSITION SENSOR
CDI UNIT
IGNITION COIL
CLUTCH LEVER POSITION SWITCH
OFF
ON
STATER BUTTON
PUSH
ENGINE STOP SWITCH
OFF
RUN
HEADLIGHT
STARTER RELAY
STARTER MOTOR
BATTERY
FUSE BOX
REGULATOR/RECTIFIER
GENERATOR
IGNITION SWITCH
ON
OFF

WIRE HARNESS, CABLE, AND HOSE ROUTING

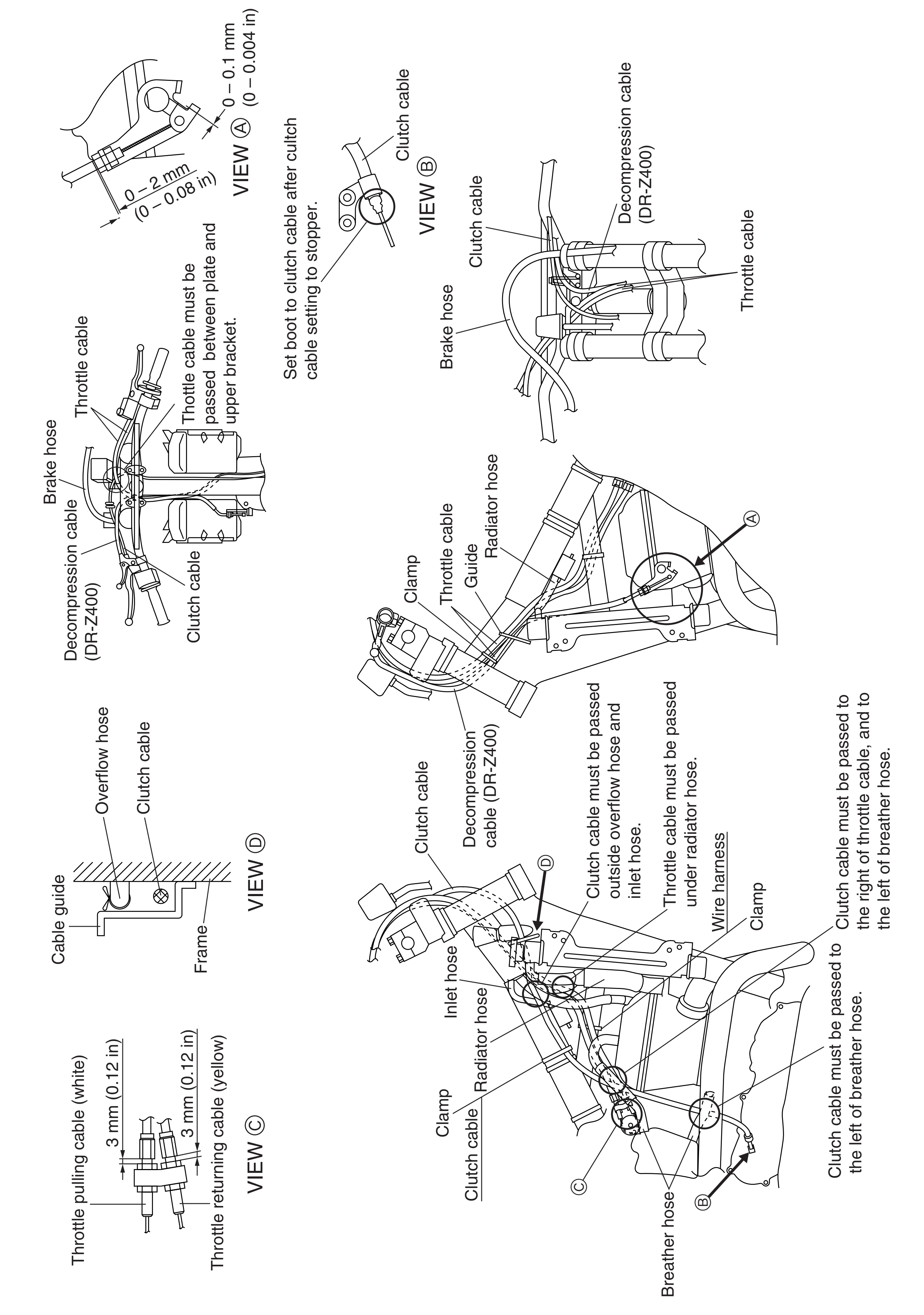
WIRE ROUTING



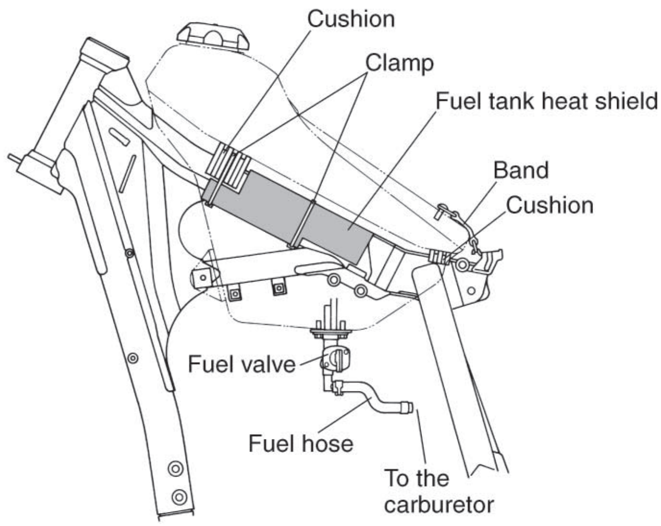


Generator lead wire
VIEW Ⓓ
Clamp
Generator
Ⓓ
DR-Z400
Generator lead wire
VIEW Ⓒ
Ⓒ
⊖ battery lead wire
VIEW Ⓔ
Generator lead wire
VIEW Ⓑ
Clamp
Generator
Ⓔ
Ⓑ
Ⓐ
DR-Z400E
Starter motor lead
VIEW Ⓐ

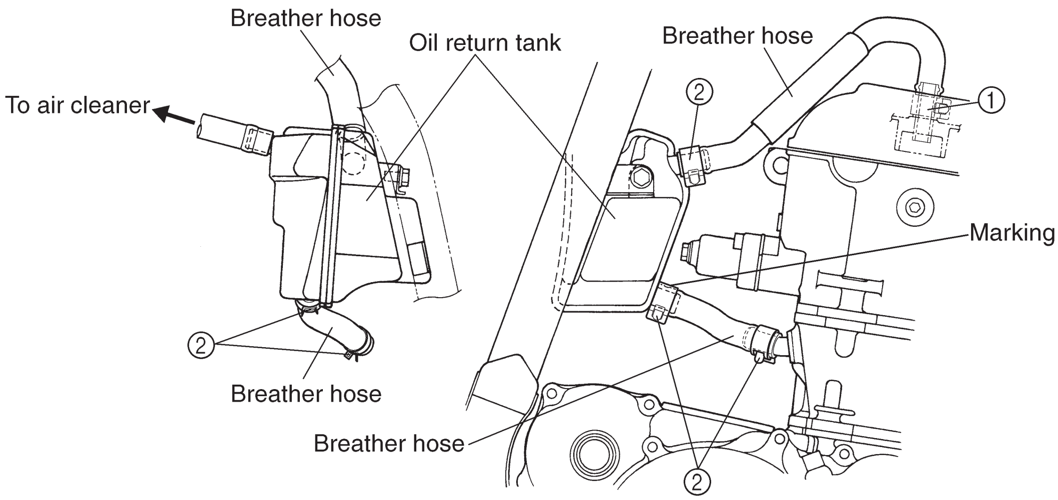
CABLE ROUTING

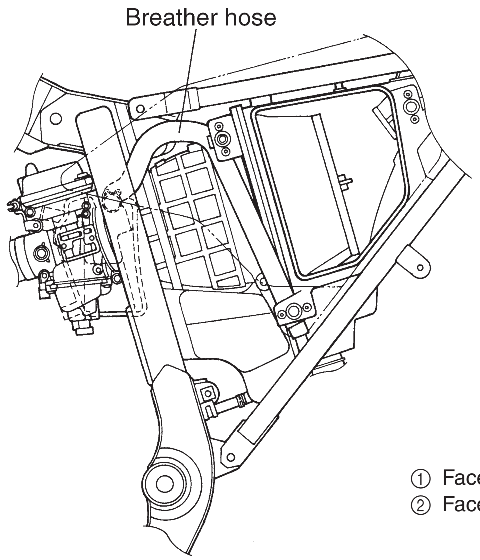


FUEL HOSE AND FUEL TANK MOUNTING



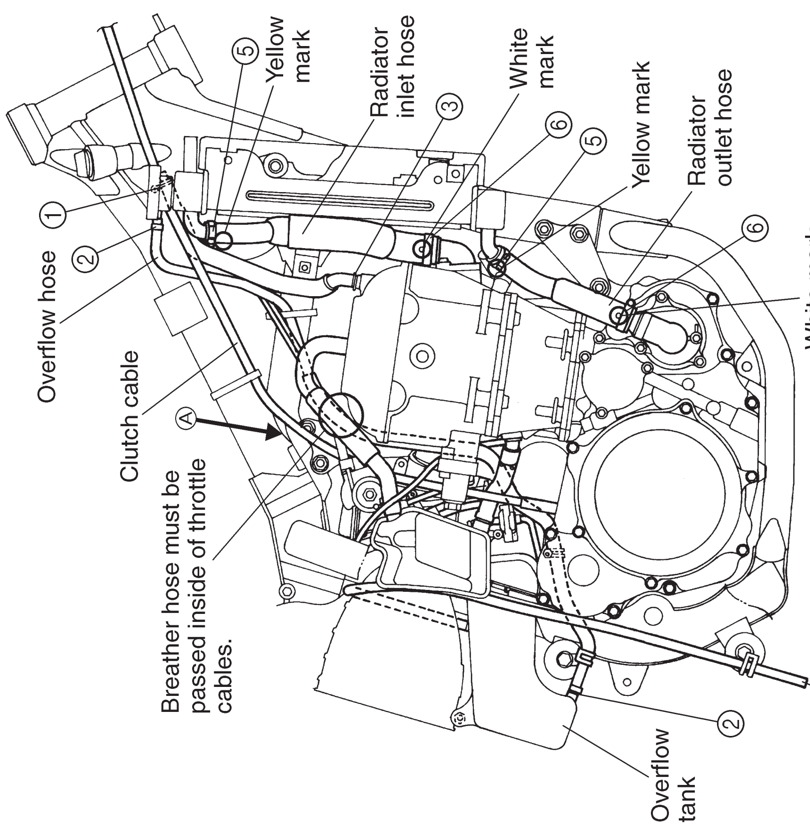
OIL RETURN TANK HOSE ROUTING

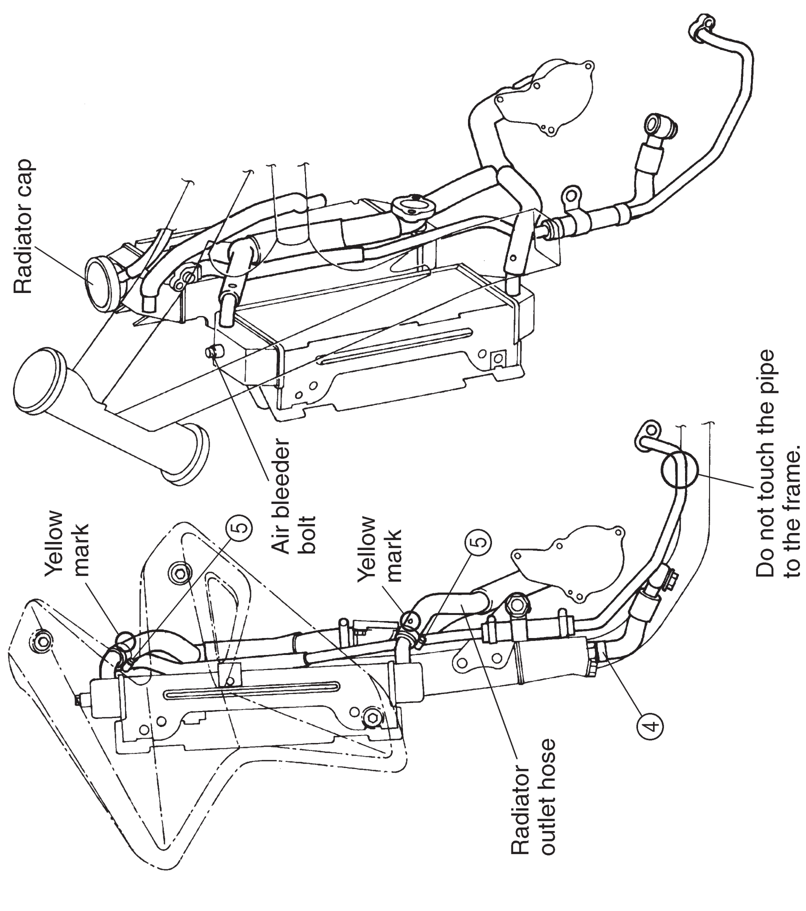


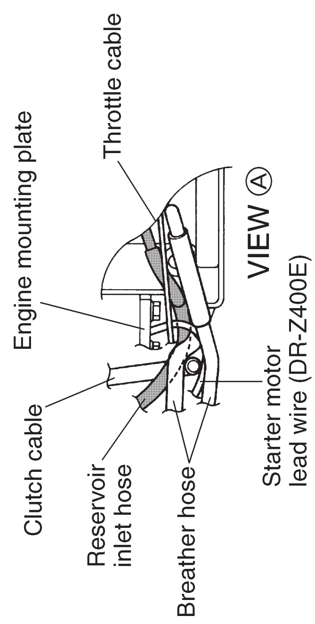


① Face the tip of clip to the front
② Face the tip of clip to the bottom

COOLING SYSTEM HOSE ROUTING

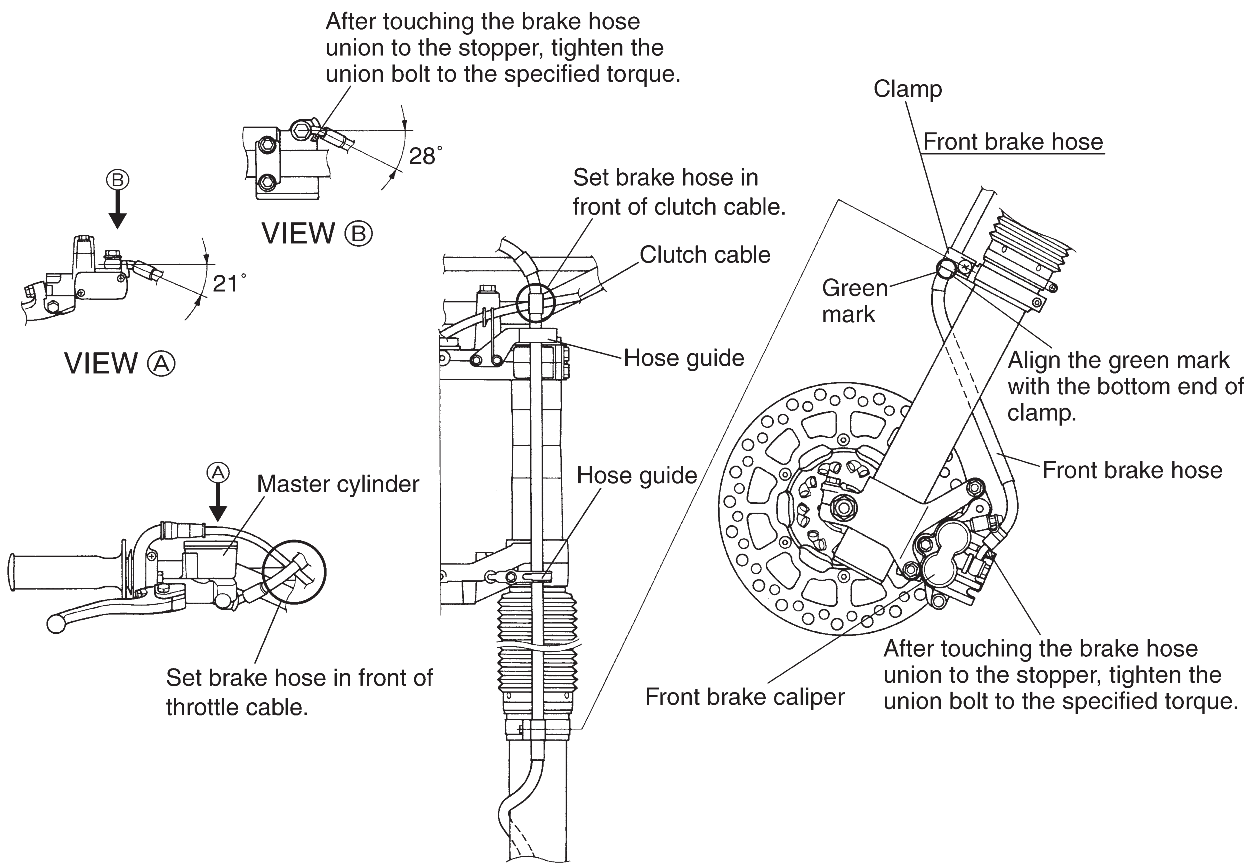




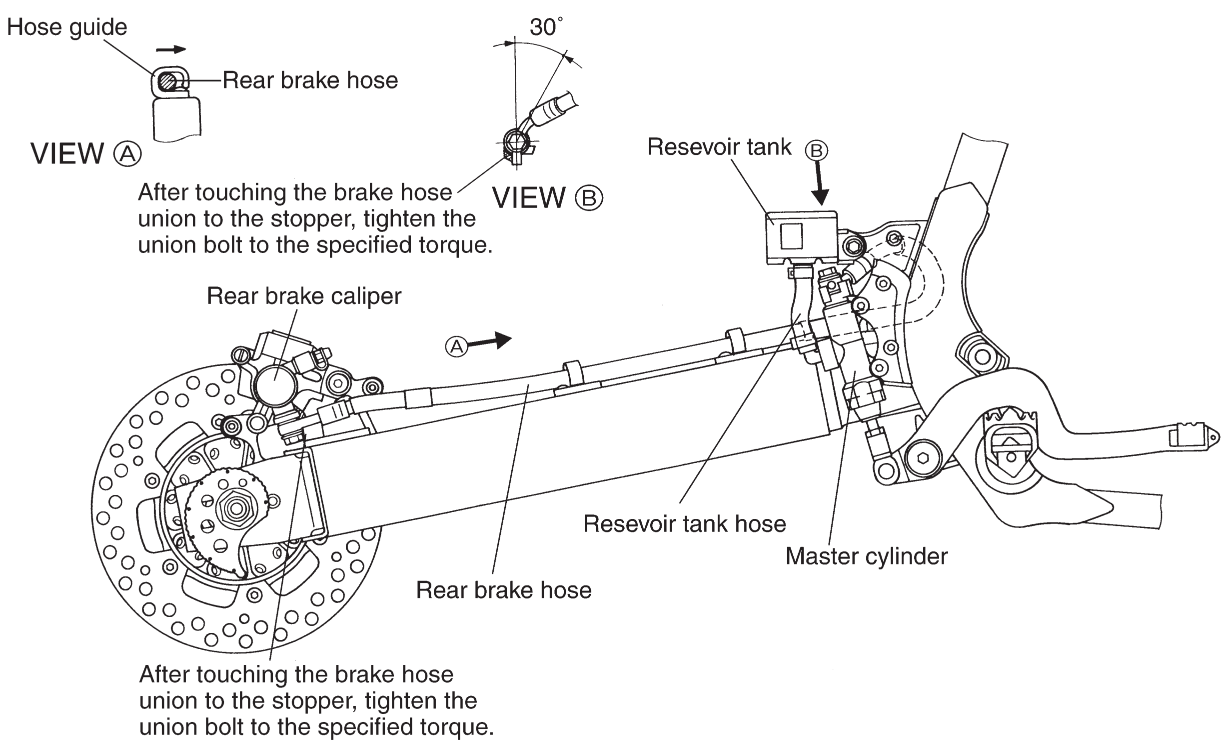


① Face the tip of clip to the top
② Face the tip of clip to the bottom
③ Face the tip of clip to the right side
④ Face the head of screw to the front side
⑤ Face the head of screw to the back side
⑥ Face the head of screw to the right side

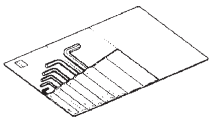
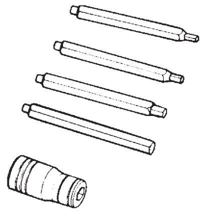
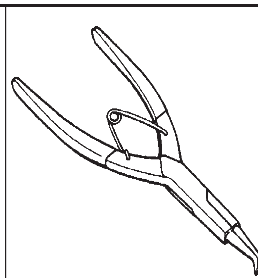
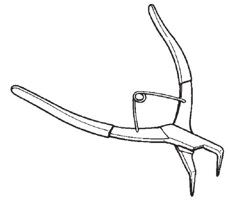
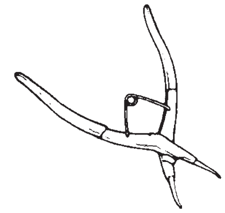
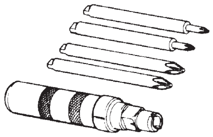
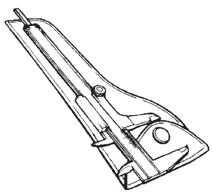
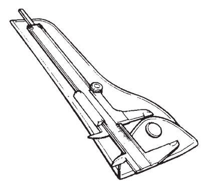
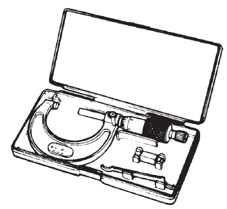
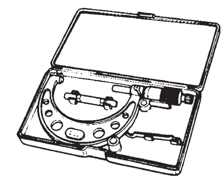
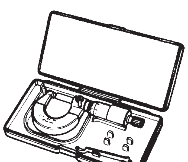
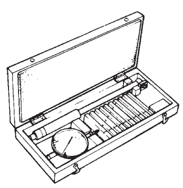
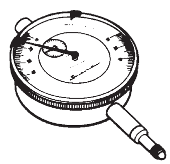
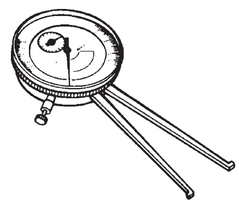
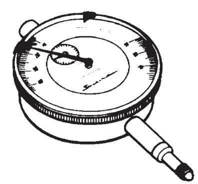
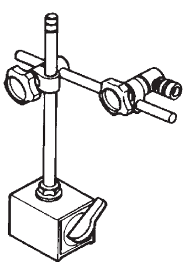
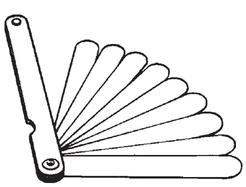
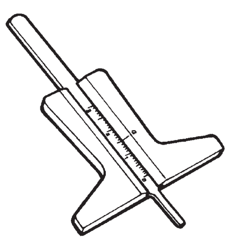
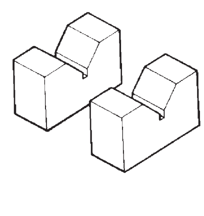
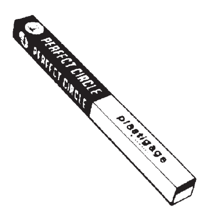
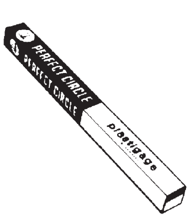
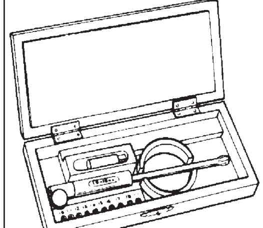
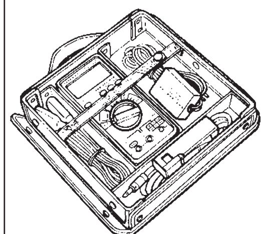
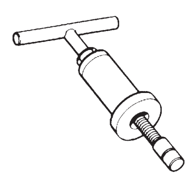
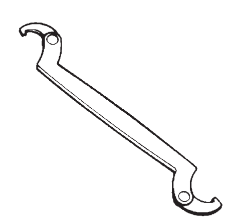
FRONT BRAKE HOSE ROUTING

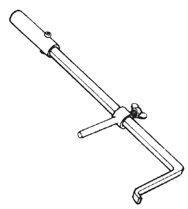
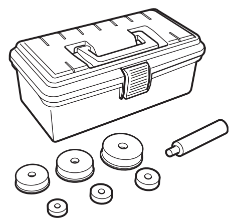
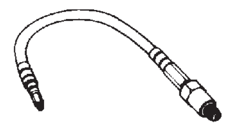
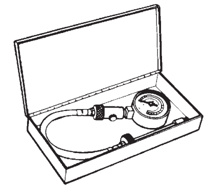
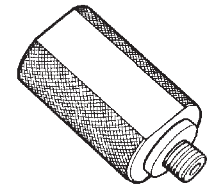
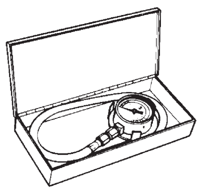
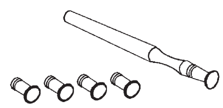
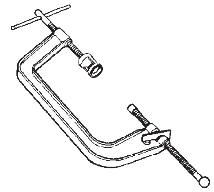
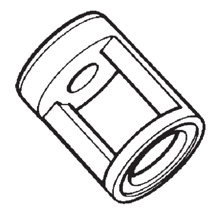
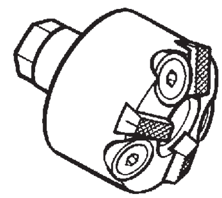
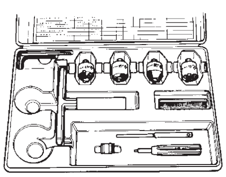
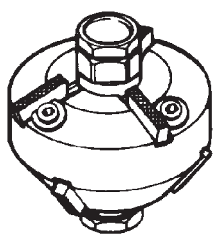
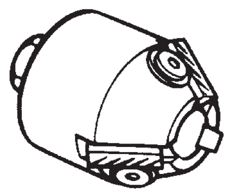
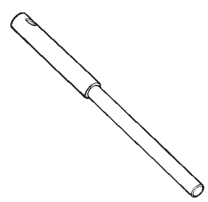
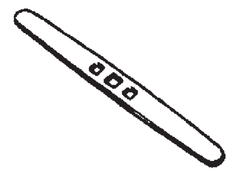
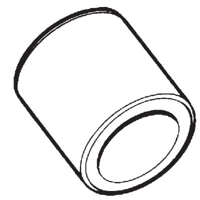
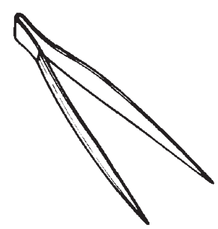
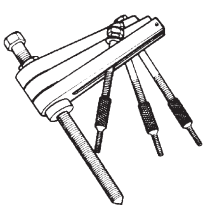
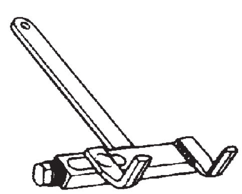
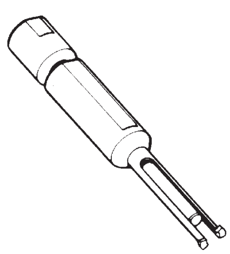
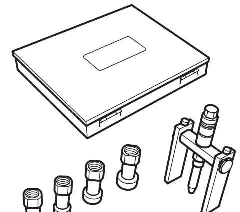
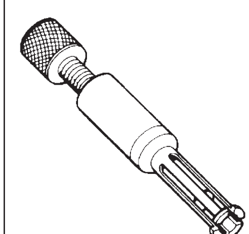


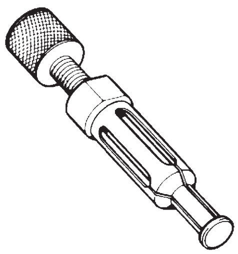
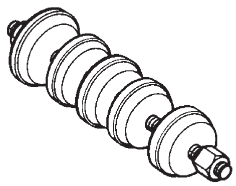
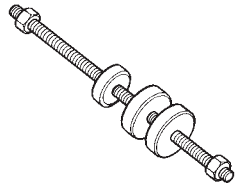
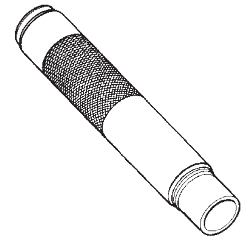
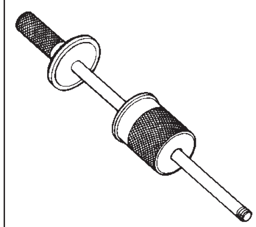
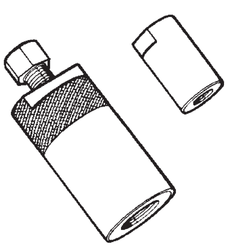
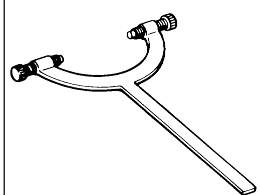
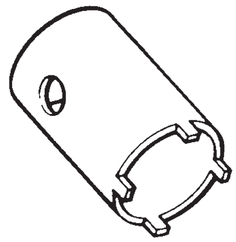
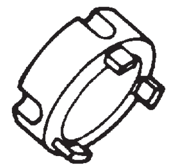
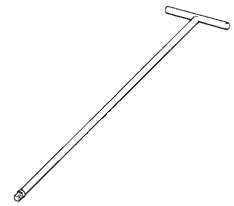
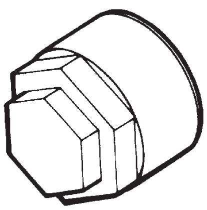
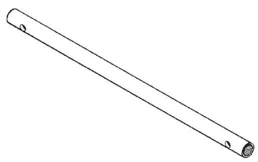
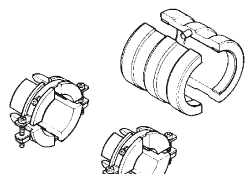
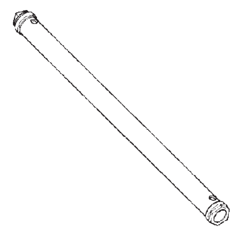
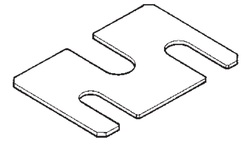
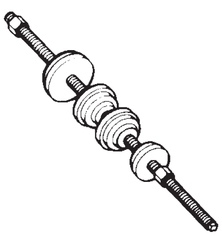
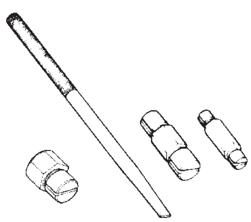
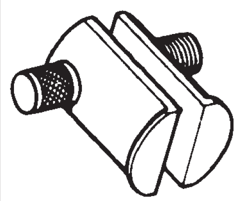
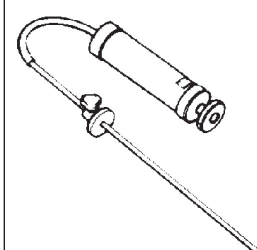
REAR BRAKE HOSE ROUTING



SPECIAL TOOLS

 **09900-00401 Hexagon wrench set**	 **09900-00410 Hexagon wrench set**	 **09900-06104 Snap ring pliers**	 **09900-06105 Snap ring pliers**	 **09900-06108 Snap ring pliers**
 **09900-09004 Impact driver set**	 **09900-20101 Vernier calipers**	 **09900-20103 Vernier calipers**	 **09900-20202 Micrometer (25 – 50 mm)**	 **09900-20204 Micrometer (75 – 100 mm)**
 **09900-20205 Micrometer (0 – 25 mm)**	 **09900-20508 Cylinder gauge set**	 **09900-20602 Dial gauge (1/1000 mm)**	 **09900-20605 Dial calipers (1/100 mm, 10 – 34 mm)**	 **09900-20606 Dial gauge (1/100 mm)**
 **09900-20701 Magnetic stand**	 **09900-20803 Thickness gauge**	 **09900-20805 Tire depth gauge**	 **09900-21304 V-block set (100 mm)**	 **09900-22301 Plastigauge**
 **09900-22302 Plastigauge**	 **09900-22403 Small bore gauge (18 – 35 mm)**	 **09900-25008 Multi circuit tester set**	 **09910-32812 Crankshaft installer**	 **09910-60611 Universal clamp wrench**

 **09913-50121** **Oil seal remover**	 **09913-70210** **Bearing installer set**	 **09915-63310** **Adapter**	 **09915-64510** **Compression gauge set**	 **09915-70610** **Adapter**
 **09915-74510** **Oil pressure gauge set**	 **09916-10911** **Valve lapper set**	 **09916-14510** **Valve lifter**	 **09916-14910** **Attachment**	 **09916-20610** **Seat cutter** **(N-121)**
 **09916-21110** **Valve seat** **Cutter set**	 **09916-22420** **Valve seat cutter** **(N-128)**	 **09916-22430** **Valve seat cutter** **(N-114)**	 **09916-24311** **Solid pilot** **(N-100-5.0)**	 **09916-34542** **Reamer handle**
 **09916-34570** **Valve guide reamer** **(5.0 mm)**	 **09916-34580** **Valve guide reamer** **(10.8 mm)**	 **09916-44310** **Valve guide remover**	 **09916-53360** **Valve guide in-staller attachment**	 **09916-84511** **Tweezers**
 **09920-13120** **Crankcase separating tool**	 **09920-53740** **Clutch sleeve hub holder**	 **09921-20210** **Bearing remover**	 **09921-20220** **Bearing remover set**	 **09923-73210** **Bearing remover**

 09923-74510 Bearing remover	 09924-84510 Bearing installer set	 09924-84521 Bearing installer set	 09925-18010 Steering bearing installer	 09930-30102 Sliding hammer
 09930-31921 Rotor remover set	 09930-44913 Rotor holder	 09940-14911 Steering stem nut wrench	 09940-14960 Steering stem nut wrench socket	 09940-34520 T handle
 09940-34581 Attachment F	 09940-52841 Front fork inner rod holder	 09940-52861 Front fork oil seal installer	 09940-54821 Front fork assem-bly tool	 09940-94922 Stopper plate
 09941-34513 Bearing installer	 09941-50111 Bearing remover	 09941-54911 Bearing outer race remover	 09941-74910 Bearing installer	 09943-74111 Fork oil level gauge

TIGHTENING TORQUE
ENGINE

ITEM		N·m	kgf-m	lb-ft
Cylinder head cover bolt		14	1.4	10.0
Spark plug		11	1.1	8.0
Cylinder head bolt	M10	46	4.6	33.5
	M6	10	1.0	7.0
Cylinder head side bolt		14	1.4	10.0
Cylinder nut		10	1.0	7.0
Decompression shaft bolt (DR-Z400)		10	1.0	7.0
Decompression shaft lever nut (DR-Z400)		23	2.3	16.5
Camshaft journal holder bolt		10	1.0	7.0
Balancer shaft nut		50	5.0	36.0
Primary drive gear nut		110	11.0	79.5
Generator rotor nut		100	10.0	72.5
Clutch sleeve hub nut		70	7.0	50.5
Gearshift arm stopper		19	1.9	13.5
Gearshift cam driven gear bolt		24	2.4	17.5
Cam chain tension adjuster bolt		10	1.0	7.0
Cam chain tensioner mounting bolt		10	1.0	7.0
Cam chain tensioner spring holder bolt		8	0.8	6.0
Engine oil drain plug (on the crankcase)		21	2.1	15.0
Engine oil drain bolt (on the frame)		18	1.8	13.0
Engine oil lebel bolt		6	0.6	4.5
Crankcase bolt		11	1.1	8.0
Oil strainer (on the frame)		23	2.3	16.5
Oil hose union bolt		23	2.3	16.5
Radiator air bleeder bolt		6.0	0.6	4.3
TDC plug		23	2.3	16.5
Engine mounting nut		66	6.6	47.5
Engine mounting bracket nut		40	4.0	29.0
Exhaust pipe bolt and nut		23	2.3	16.5
Muffler connection bolt		20	2.0	14.5
Muffler mounting bolt		23	2.3	16.5
Engine sprocket nut		110	11.0	79.5
Intake pipe union		8	0.8	6.0
Fuel valve mounting bolt		4.4	0.44	3.2

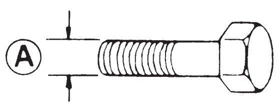
CHASSIS

ITEM		N·m	kgf-m	lb-ft
Handlebar clamp bolt		23	2.3	16.5
Front fork upper clamp bolt		30	3.0	21.5
Front fork lower clamp bolt		32	3.2	23.0
Steering stem head nut		90	9.0	65.0
Front fork cap bolt		23	2.3	16.5
Front fork damper rod bolt		80	8.0	58.0
Front fork inner rod locknut		22	2.2	16.0
Front brake master cylinder mounting bolt		10	1.0	7.0
Rear brake master cylinder mounting bolt		10	1.0	7.0
Brake hose union bolt (front & rear)		23	2.3	16.5
Front brake caliper mounting bolt		26	2.6	19.0
Brake pad mounting pin (front & rear)		18	1.8	13.0
Brake caliper plug (front & rear)		2.5	0.25	1.8
Brake air bleeder valve (front & rear)		7.5	0.75	5.5
Rear brake rod locknut		18	1.8	13.0
Rear brake pedal bolt		29	2.9	21.0
Brake disc mounting bolt (front & rear)		10	1.0	7.0
Front axle nut		42	4.2	30.5
Front axle pinch bolt		18	1.8	13.0
Seat rail mounting nut (upper)		35	3.5	25.5
Seat rail mounting bolt (lower)		35	3.5	25.5
Rear axle nut	E-03, 28	100	10.0	72.5
	The other countries	110	11.0	79.5
Rear sprocket nut		30	3.0	21.5
Drive chain roller mounting bolt (upper & lower)		40	4.0	29.0
Spoke nipple (front & rear)		3	0.3	2.0
Swingarm pivot nut		77	7.7	55.5
Rear shock absorber compression adjuster assembly		30	3.0	21.5
Rear shock absorber spring adjuster lock ring		90	9.0	65.0
Rear shock absorber mounting nut (upper & lower)		55	5.5	40.0
Cushion lever mounting nut (center)		100	10.0	72.5
Cushion lever mounting nut (front)		100	10.0	72.5
Cushion rod mounting nut		100	10.0	72.5
Side stand bolt		50	5.0	36.0
Side stand nut		55	5.5	40.0

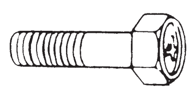
TIGHTENING TORQUE CHART

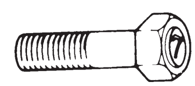
For other nuts and bolts not listed in the preceding page, refer to this chart:

Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	4.5	0.45	3.0
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



Conventional bolt


"4" marked bolt



"7" marked bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diameter	IN.	36 (1.42)	—
	EX.	29 (1.14)	—
Tappet clearance (when cold)	IN.	0.10 – 0.20 (0.0039 – 0.0079)	—
	EX.	0.20 – 0.30 (0.0079 – 0.0118)	—
Valve-guide-to-valve-stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	—
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve stem thickness	IN. & EX.	—	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	—	32.6 (1.28)
	OUTER	—	36.3 (1.43)
Valve spring tension (IN. & EX.)	INNER	56 – 64 N (5.6 – 6.4 kgf, 12.3 – 14.1 lbs) at length 27.4 mm (1.08 in)	—
	OUTER	126 – 145 N (12.6 – 14.5 kgf, 27.7 – 32.0 lbs) at length 30.9 mm (1.22 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	36.910 – 36.960 (1.4531 – 1.4551)	36.610 (1.4413)
	EX.	36.880 – 36.930 (1.4520 – 1.4539)	36.580 (1.4402)
Camshaft journal oil clearance	IN. & EX.	0.019 – 0.053 (0.0007 – 0.0021)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8666 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.972 – 21.993 (0.8653 – 0.8659)	—
Camshaft runout	IN. & EX.	—	0.10 (0.004)
Cam chain pin (at arrow "3")	15th pin		—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)
Decompression cable play (DR-Z400)	0 – 0.1 (0 – 0.004)		—

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure (DR-Z400E) (Automatic decompression actuated)	1 000 kPa (10.0 kgf/cm^2, 142 psi)			—
Piston-to-cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			0.120 (0.0047)
Cylinder bore	90.000 – 90.015 (3.5433 – 3.5439)			Nicks or scratches
Piston diameter	89.965 – 89.980 (3.5419 – 3.5425) Measure 15 (0.6) from the skirt end			89.880 (3.5386)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approximately 6.9 (0.27)	5.5 (0.22)
	2nd	R	Approximately 11.5 (0.45)	9.2 (0.36)
Piston ring end gap	1st & 2nd	0.08 – 0.20 (0.003 – 0.008)		0.50 (0.020)
Piston-ring-to-piston-ring-groove clearance	1st	—		0.180 (0.007)
	2nd	—		0.150 (0.006)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	0.78 – 0.80 (0.0307 – 0.0315) 1.30 – 1.32 (0.0512 – 0.0520)	—
	2nd	0.81 – 0.83 (0.0319 – 0.0327)	—
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	—
Piston ring thickness	1st	0.71 – 0.76 (0.0280 – 0.0299) 1.08 – 1.10 (0.0425 – 0.0433)	—
	2nd	0.77 – 0.79 (0.0303 – 0.0311)	—
Piston pin bore	20.002 – 20.008 (0.7875 – 0.7877)		20.030 (0.7886)
Piston pin O.D.	19.995 – 20.000 (0.7872 – 0.7874)		19.980 (0.7866)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	20.010 – 20.018 (0.7878 – 0.7881)	20.040 (0.7890)
Crank-web-to-crank-web width	62.0 ± 0.1 (2.441 ± 0.004)	—
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.30 – 0.65 (0.012 – 0.026)	1.0 (0.04)
Conrod big end width	21.95 – 22.00 (0.864 – 0.866)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

Unit: mm (in)

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.220 (74/25 × 20/16 × 12/20)	—
Oil pressure (at 60°C, 140°F)	Above 40 kPa (0.4 kgf/cm^2, 5.7 psi) Below 140 kPa (1.4 kgf/cm^2, 19.9 psi) at 3000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10 – 15 (0.4 – 0.6)	—
Clutch drive plate thickness (No. 1 & No. 2)	2.92 – 3.08 (0.115 – 0.121)	2.62 (0.103)
Clutch drive plate claw width (No. 1 & No. 2)	13.7 – 13.8 (0.539 – 0.543)	13.2 (0.520)
Clutch drive plate distortion	—	0.10 (0.004)
Clutch spring free length	—	49.9 (1.96)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		2.960 (74/25)		—
Final reduction ratio		3.357 (47/14)		—
Gear ratios	Low	2.285 (32/14)		—
	2nd	1.733 (26/15)		—
	3rd	1.375 (22/16)		—
	4th	1.090 (24/22)		—
	Top	0.863 (19/22)		—
Gearshift-fork-to-gearshift-fork-groove clearance		0.1 – 0.3 (0.004 – 0.012)		0.5 (0.02)
Gearshift fork groove width		No. 1, No. 2 & No. 3	4.8 – 4.9 (0.189 – 0.193)	—
Gearshift fork thickness		No. 1, No. 2 & No. 3	4.6 – 4.7 (0.181 – 0.185)	—
Drive chain		Type	RK520KZO	—
		Links	112	—
		20-pitch length	—	319.4 (12.57)
Drive chain slack		40 – 50 (1.6 – 2.0)		—

CARBURETOR

ITEM		SPECIFICATION			
		DR-Z400		DR-Z400E	
		E-01	E-03, 28	E-01	E-03, 28
Carburetor type		KEIHIN FCR39H	←	←	←
Bore size		39 mm (1.5 in)	←	←	←
I.D. No.		29F0	29F1	29F3	29F4
Idle r/min		1800 ± 100 r/min	←	←	←
Float height		9.0 ± 1.0 mm (0.35 ± 0.04 in)	←	←	←
Main jet	(M.J.)	#165	#142	#165	#142
Main air jet	(M.A.J.)	#200	←	←	←
Jet needle	(J.N.)	OBDXP-4th	←	←	←
Needle jet	(N.J.)	2.9 mm (0.11 in)	←	←	←
Slow jet	(S.J.)	#45	←	←	←
Slow air jet	(S.A.J.)	#60	←	←	←
Air jet	(A.J.)	#90	←	←	←
Pilot screw	(P.S.)	1 1/2 turns out	←	←	←
Throttle cable play		2 – 4 mm (0.08 – 0.16 in)	←	←	←

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	NOTE
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)	
Engine coolant type	Use an antifreeze/coolant compatible with aluminum radiators, mixed with distilled water only, at the ratio of 50:50	
Engine coolant capacity	1 250 ml (1.3 US qt, 1.1 Imp qt)	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake pedal height	5 (0.2)		—
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.10)
	Rear	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.16)
Brake disc runout	Front & Rear	—	0.30 (0.01)
Master cylinder bore	Front	11.000 – 11.043 (0.4331 – 0.4348)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diameter	Front	10.957 – 10.984 (0.4314 – 0.4324)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	—
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	—
Brake caliper piston diameter	Front	26.900 – 26.950 (1.0591 – 1.0610)	—
	Rear	26.900 – 26.950 (1.0591 – 1.0610)	—
Brake fluid type	DOT 4		—
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel rim size	Front	1.60 × 21	—
	Rear	2.15 × 18	—
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)

TIRE

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Cold inflation tire pressure (Solo riding)	Front	100 kPa (1.0 kgf/cm^2, 14 psi)	—
	Rear	100 kPa (1.0 kgf/cm^2, 14 psi)	—
Tire size	Front	80/100 – 21 51M	—
	Rear	110/100 – 18 64M	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Front fork stroke	288 (11.3)		—
Front fork spring free length	510.6 (20.1)		500 (19.7)
Front fork oil level (without spring)	122 (4.8)		—
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		—
Front fork oil capacity (each leg)	720 ml (24.3 US oz, 25.4 Imp oz)		—
Front fork damping force adjuster	Rebound	15 clicks out	—
	Compression	12 clicks out	—
Rear shock absorber gas pressure	900 kPa (9.0 kgf/cm^2, 128 psi)		—
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil		—
Rear shock absorber oil capacity	380 ml (12.8 US oz, 13.4 Imp oz)		—
Rear shock absorber spring pre-set length	258.0 (10.2)		—
Rear shock absorber damping force adjuster	Rebound	13 clicks out	—
	Compression	12 clicks out	—
Rear wheel travel	295 (11.6)		—
Swingarm pivot shaft runout	—		0.3 (0.01)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR8E DENSO: U24 ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.0 Ω	Terminal – Ground
		Secondary	12 – 20 kΩ	Plug cap – Terminal
Ignition coil primary peak voltage		More than 150 V (⊕:B/W, ⊖:B/Y)		
Generator coil resistance		Signal coil	0.05 – 0.20 Ω	B – W
		Pickup coil	390 – 600 Ω	G – Bl
		Charging coil	0.50 – 1.25 Ω	Y – Y
Pickup coil peak voltage		More than 10.0 V (⊕:Bl, ⊖:G)		DR-Z400
		More than 5.0 V (⊕:Bl, ⊖:G)		DR-Z400E
Signal coil peak voltage		More than 1.0 V (⊕:B, ⊖:W)		DR-Z400
		More than 1.4 V (⊕:B, ⊖:W)		DR-Z400E
Generator no-load voltage (when engine is cold)		More than 55 V (AC) at 5 000 r/min (Y–Y)		DR-Z400
		More than 75V (AC) at 5 000 r/min (Y–Y)		DR-Z400E
Regulated voltage		12.5 – 14.0 V at 5 000 r/min		DR-Z400
		13.5 – 15.0 V at 5 000 r/min		DR-Z400E
Generator maximum output		150 W at 5 000 r/min		DR-Z400
		200 W at 5 000 r/min		DR-Z400E
Starter relay resistance		3 – 5 Ω		DR-Z400E
Battery	Type designation	GT7B-4		DR-Z400E
	Capacity	12 V 23.4 kC (6.5 Ah)/10 HR		

WATTAGE

Unit: W

ITEM	SPECIFICATION
Headlight	55
Taillight	LED

FUEL + OIL

ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 90 pump octane ($\frac{R+M}{2}$). Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10 % ethanol, or less than 5 % methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03, 28
		Gasoline used should be graded 95 octane or higher. An unleaded gasoline is recommended.		E-01
Fuel tank including reserve		10.0 L (2.6 US gal, 2.2 Imp gal)		
	reserve	2.3 L (0.6 US gal, 0.5 Imp gal)		
Engine oil type		SAE 10 W-40, API SF or SG		
Engine oil capacity		Change	1 700 ml (1.8 US qt, 1.5 Imp qt)	
		Filter change	1 800 ml (1.9 US qt, 1.6 Imp qt)	
		Overhaul	1 900 ml (2.0 US qt, 1.7 Imp qt)	